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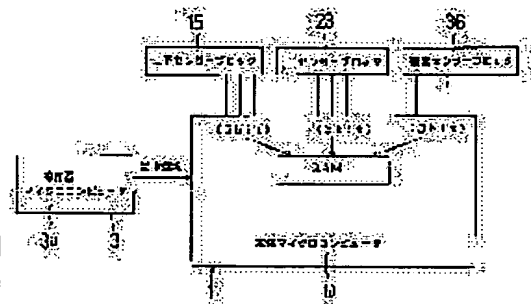
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(54) MASSAGING APPARATUS

(57)Abstract:

PURPOSE: To enable the adapting of operations of treating element to the preference of a user by providing a massaging apparatus with an operation details altering means to allow the operation of the treating elements by an automatic operation control means to differ from the details of the operation stored.

CONSTITUTION: While a main microcomputer 1a composing an automatic operation control means and a operation details altering means selects a plurality of switches handling manual operation to perform the operation of treating elements, data of the vertical position of the treating elements detected with a vertical pal position sensor block 15, a width-wise position of the treating elements detected with a width sensor block 23 and a sticking out value of the treating elements detected with an intensity/weakness sensor block 36 are stored into an internal RAM. Then, when a switch which lets the treating elements perform an automatic course operation for a specified time is selected and the treating elements are operated, the contents of a program of an automatic operation control means are altered based on the data stored in the RAM.



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CLAIMS

[Claim(s)]

[Claim 1] the free medical treatment which massages in contact with the body -- a child and free medical treatment -- with a location change means to change a child's location free medical treatment -- a strength change means to change a child's amount of protrusions, and free medical treatment -- with an actuation means to make two or more modes of operation based on change of a child's location and/or the amount of protrusions perform In the massage machine which can choose actuation of a child progress of predetermined time -- responding -- predetermined voice of operation -- free medical treatment have the automatic actuation control means which has programmed changing like beforehand, and according to each means -- free medical treatment by said location change means, the strength change means, and the actuation means -- a child's activity -- memorizing -- an automatic actuation control means -- free medical treatment, when operating a child the condition of having changed the contents currently beforehand programmed based on the memorized activity -- free medical treatment -- the massage machine which comes to prepare an activity modification means to operate a child.

[Claim 2] Said activity modification means is a massage machine according to claim 1 which is constituted and becomes so that the contents which asked for the time amount ratio or average about a location among the memorized activity, and had been programmed beforehand may be changed in the direction approaching this time amount ratio or average.

[Claim 3] The massage machine according to claim 1 or 2 which comes to set up the level of the location in the case of asking for said time amount ratio or average for every predetermined spacing.

[Claim 4] Said activity modification means is a massage machine given in claim 1 thru/or any of 3 they are. [which is constituted and becomes so that the contents which asked for the time amount ratio or average about the amount of protrusions among the memorized activity, and had been programmed beforehand may be changed in the direction approaching this time amount ratio or average]

[Claim 5] Said activity modification means is a massage machine given in claim 1 thru/or any of 4 they are. [which is constituted and becomes so that the contents which asked for the time amount ratio about a mode of operation among the memorized activity, and had been programmed beforehand may be changed in the

direction approaching this time amount ratio]

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention -- free medical treatment -- locations, such as a child's vertical direction and a cross direction, the amount of protrusions, and a mode of operation -- suitably -- setting up -- free medical treatment -- the contents currently beforehand programmed with the manual actuation which operates a child -- following -- free medical treatment -- it is related with the massage machine equipped with the automatic course actuation which operates a child automatically.

[0002]

[Description of the Prior Art] the former -- as this kind of massage machine -- free medical treatment -- the contents which have programmed the child beforehand to the microcomputer -- following -- progress of predetermined time -- responding -- predetermined voice of operation -- there is a thing equipped with the automatic course actuation changed like.

[0003] moreover, a chair-type massage machine indicates to JP,5-56131,U -- having -- **** -- this -- free medical treatment -- if a switch of operation is turned off at the time of termination -- a microcomputer -- free medical treatment -- the free medical treatment at the time of termination -- a child's location and voice of operation -- when combination [like] is memorized and a switch of operation is turned on again, the contents at the time of termination are read last time which the microcomputer had memorized, and free medical treatment is made to start at the contents

[0004]

[Problem(s) to be Solved by the Invention] however -- since the former gives free medical treatment in the massage machine mentioned above according to the contents currently programmed beforehand when massaging in automatic course actuation -- free medical treatment -- the contents had not necessarily turned into contents suitable for liking of a user. moreover -- although it is improved compared with the former since the latter starts free medical treatment from the contents at the time of termination last time, so that it uses -- free medical treatment -- it was not what brings the contents close to the contents suitable for liking of a user further.

[0005] the contents which had programmed beforehand the place which this invention

is made in view of such a point, and is made into the purpose -- free medical treatment -- the condition of having brought the contents of the program in the direction suitable for liking of a user close when operating a child -- carrying out -- free medical treatment -- it is in offering the massage machine which can operate a child.

[0006]

[Means for Solving the Problem] In order to attain said purpose, a massage machine according to claim 1 the free medical treatment which massages in contact with the body -- a child and free medical treatment -- with a location change means to change a child's location free medical treatment -- a strength change means to change a child's amount of protrusions, and free medical treatment -- with an actuation means to make two or more modes of operation based on change of a child's location and/or the amount of protrusions perform In the massage machine which can choose actuation of a child progress of predetermined time -- responding -- predetermined voice of operation -- free medical treatment have the automatic actuation control means which has programmed changing like beforehand, and according to each means -- free medical treatment by said location change means, the strength change means, and the actuation means -- a child's activity -- memorizing -- an automatic actuation control means -- free medical treatment, when operating a child the condition of having changed the contents currently beforehand programmed based on the memorized activity -- free medical treatment -- it is considering as the configuration which established an activity modification means to operate a child.

[0007] Moreover, the activity modification means of a thing according to claim 1 asks for the time amount ratio or average about a location among the memorized activity, and is considering the massage machine according to claim 2 as the configuration constituted so that the contents currently programmed beforehand might be changed in the direction approaching this time amount ratio or average.

[0008] Moreover, the massage machine according to claim 3 is considering the level of the location in the case of asking for the time amount ratio of a thing according to claim 1 or 2, or an average as the configuration set up for every predetermined spacing.

[0009] Moreover, the activity modification means of a thing given in any [claim 1 thru/or] of 3 they are asks for the time amount ratio or average about the amount of protrusions among the memorized activity, and is considering the massage machine according to claim 4 as the configuration constituted so that the contents currently programmed beforehand might be changed in the direction approaching this time

amount ratio or average.

[0010] Moreover, the activity modification means of a thing given in any [claim 1 thru/or] of 4 they are asks for the time amount ratio about a mode of operation among the memorized activity, and is considering the massage machine according to claim 5 as the configuration constituted so that the contents currently programmed beforehand might be changed in the direction approaching this time amount ratio.

[0011]

[Function] having established the activity modification means according to the configuration according to claim 1 -- an automatic actuation control means -- free medical treatment -- the condition of having brought close the contents currently programmed beforehand in the direction suitable for liking of a user when operating a child -- carrying out -- free medical treatment -- a child can be operated.

[0012] According to the configuration according to claim 2, the contents of the program can be close brought in the direction suitable for liking of a user by changing the contents currently programmed beforehand in the direction approaching the time amount ratio or average about a location.

[0013] According to the configuration according to claim 3, the program of an automatic actuation control means can be constituted easily.

[0014] According to the configuration according to claim 4, the contents of the program can be close brought in the direction suitable for liking of a user by changing the contents currently programmed beforehand in the direction which projects and approaches the time amount ratio or average about an amount.

[0015] According to the configuration according to claim 5, the contents of the program can be close brought in the direction suitable for liking of a user by changing the contents currently programmed beforehand in the direction approaching the time amount ratio about a mode of operation.

[0016]

[Example] One example of this invention is explained based on drawing 1 thru/or drawing 10 . In addition, although the massage machine of this invention can consider a chair type, a bed type, etc., this example explains it taking the case of a chair-type massage machine.

[0017] body 1 the free medical treatment which massages in contact with the body -- child 2 free medical treatment -- child 2 With a location change means to change the location of the vertical direction, the location of a cross direction, and a right hand side free medical treatment -- child 2 a strength change means to change the amount of protrusions, and free medical treatment -- child 2 the sideburns and counterboring

based on change of a location and/or the amount of protrusions, a beat, and back
**** -- carrying out -- partial back **** -- carrying out -- beat back **** --
carrying out -- partial beat back **** -- carrying out -- etc. -- with an actuation
means to make a mode of operation perform The automatic actuation control means
which has programmed beforehand changing to a predetermined mode of operation
according to progress of predetermined time, an activity modification means to
change the contents which had programmed the automatic actuation control means
beforehand -- having -- actuation machine 3 free medical treatment by each means
-- child 2 It is constituted so that actuation can be chosen.

[0018] Actuation machine 3 Actuation machine microcomputer 3a is built in. In an
actuation side it is shown in drawing 2 -- as -- free medical treatment -- child 2
actuation -- initiation or free medical treatment -- switch SW1 which contains a child
free medical treatment -- child 2 Switch SW2 which suspends actuation free medical
treatment -- child 2 Switch SW3 on which predetermined time automatic course
actuation is made to perform switch SW4 which shortens the time amount of
automatic course actuation free medical treatment -- child 2 It has switch SW5
-SW11 to which manual actuation is made to perform.

[0019] switch SW5 free medical treatment -- child 2 the thing which makes it move in
the direction in which it projects and an amount becomes large (it comes out) -- it is
-- switch SW6 free medical treatment -- child 2 the thing which makes it move in the
direction in which it projects and an amount becomes small (it withdraws) -- it is --
switch SW7 free medical treatment -- child 2 the thing to which it is made to move up
-- it is -- switch SW8 free medical treatment -- child 2 the thing to which it is made
to move caudad -- it is -- switch SW9 free medical treatment -- child 2 the thing
which makes it move in the direction in which spacing on either side becomes large (it
becomes large) -- it is -- a switch SW10 -- free medical treatment -- child 2 It is
made to move in the direction in which spacing on either side becomes small (it
becomes narrow). a switch SW11 -- free medical treatment -- child 2 the
aforementioned voice of operation -- it is made to be displayed by lighting in display
3b by the mode of operation which chooses from inside [like] and was chosen

[0020] next, the inside of a location change means -- free medical treatment -- child
2 The structure of making it operating in the vertical direction it is shown in drawing 3
and drawing 4 -- as -- free medical treatment -- child 2 With the main shaft 11 for
making it operate up and down Edge 11a of a main shaft 11 The engagement clutch 13
attached in a periphery free [idling] in the condition of having been energized with
the coiled form push spring 12, it constitutes from a barrel 14 which gears at the

engagement clutch 13 and rotates with this -- having -- **** -- free medical treatment -- child 2 In order to detect the location of the vertical direction, the vertical sensor block 15 is established.

[0021] The vertical sensor block 15 is gear 13a prepared in the periphery of the engagement clutch 13. The meshing gear 16, a gear 16 -- gearing -- free medical treatment -- child 2 With the 1st disk 17 and the 2nd disk 18 which perform rotation within one revolution in [both] a vertical directional movement field Sensors SNS1 and SNS2 by which a light-emitting part and a light sensing portion face on both sides of the 1st disk 17 It consists of sensors SNS3, SNS4, and SNS5 by which a light-emitting part and a light sensing portion face on both sides of the 2nd disk 18.

[0022] Sensors SNS1 and SNS2 Arc-shaped slits 17a and 17b from which two kinds of paths formed in the 1st disk 17 differ It is what detects whether it minds and the light from each light-emitting part is received by the light sensing portion. Sensors SNS3, SNS4, and SNS5 are the arc-shaped slits 18a, 18b, and 18c from which three kinds of paths formed in the 2nd disk 18 differ. It detects whether it minds and the light from each light-emitting part is received by the light sensing portion.

[0023] therefore, the vertical sensor block 15 consists of 5 bits, as shown in drawing 5 -- having -- free medical treatment -- child 2 the level of the location of the vertical direction is expressed with 32 division from Y0 (upper limit) to Y31 (minimum) -- ***** -- free medical treatment -- child 2 The location of the vertical direction is detectable. In addition, for "1" in drawing, the light from a light-emitting part is Slits 17a, 17b, 18a, 18b, and 18c. It is shown that mind and light is received by the light sensing portion, and "0" shows that the light from a light-emitting part is barred by the 1st disk 17 or 2nd disk 18, and is not received by the light sensing portion.

[0024] next, the inside of a location change means -- free medical treatment -- child 2 The structure of operating a cross direction Screw section 21a matched for a cross direction with an axis by abbreviation parallel as shown in drawing 6 Supporter 21b The shaft 21 which it had, free medical treatment -- child 2 that to which it shows a cross direction -- it is -- screw section 21a it constitutes from a connection arm 22 to screw -- having -- **** -- free medical treatment -- child 2 In order to detect the location of a cross direction, the width sensor block 23 is established.

[0025] The width sensor block 23 is supporter 21b while being fixed to the edge of the connection arm 22. It consists of a detection plate 24 supported and sensors SNS6, SNS7, and SNS8 by which a light-emitting part and a light sensing portion face on both sides of the detection plate 24. Sensors SNS6, SNS7, and SNS8 are the slits 24a, 24b, and 24c of three trains formed in the detection plate 24. It detects whether it

minds and the light from each light-emitting part is received by the light sensing portion.

[0026] therefore, the width sensor block 23 consists of 3 bits, as shown in drawing 7 -- having -- free medical treatment -- child 2 the level of the amount of protrusions is expressed with eight division from X0 (the minimum width) to X7 (the maximum width) -- ***** -- free medical treatment -- child 2 The location of a cross direction is detectable. In addition, for "1" in drawing, the light from a light-emitting part is Slits 24a, 24b, and 24c. It is shown that mind and light is received by the light sensing portion, and "0" shows that the light from a light-emitting part is barred by the detection plate 24, and is not received by the light sensing portion.

[0027] next, free medical treatment of a strength change means -- child 2 The structure of making it operating in the protrusion direction The strength clutch 32 which rotation of a motor is delivered by the belt 31 as shown in drawing 8 , The delivery bolt 33 which is connected with the strength clutch 32, is united, and rotates, vertical motion of the delivery nut 34 screwed in the delivery bolt 33, and the delivery nut 34 -- free medical treatment -- child 2 movement of the protrusion direction -- changing -- free medical treatment -- child 2 it constitutes from a connection ring 35 which transmits movement -- having -- **** -- free medical treatment -- child 2 In order to detect the amount of protrusions, the strength sensor block 36 is established.

[0028] The strength sensor block 36 consists of a detection plate 37 fixed to the predetermined part of the delivery nut 34, and sensors SNS9, SNS10, and SNS11 by which a light-emitting part and a light sensing portion face on both sides of the detection plate 37.

[0029] Sensors SNS9, SNS10, and SNS11 are the slits 37a, 37b, and 37c of three trains formed in the detection plate 37. It detects whether it minds and the light from each light-emitting part is received by the light sensing portion.

[0030] therefore, the strength sensor block 36 consists of 3 bits, as shown in drawing 9 -- having -- free medical treatment -- child 2 the level of the amount of protrusions is expressed with eight division from Z0 (min (the maximum weakness)) to Z7 (max (strongest)) -- ***** -- free medical treatment -- child 2 The amount of protrusions is detectable. In addition, for "1" in drawing, the light from a light-emitting part is Slits 37a, 37b, and 37c. It is shown that mind and light is received by the light sensing portion, and "0" shows that the light from a light-emitting part is barred by the detection plate 37, and is not received by the light sensing portion.

[0031] The vertical sensor block 15 constituted as mentioned above, the width sensor block 23, and the strength sensor block 36 are connected to body microcomputer 1a

which constitutes an automatic actuation control means and an activity modification means. body microcomputer 1a -- switch SW5 -SW11 -- suitably -- choosing -- free medical treatment -- child 2 While making it operate the free medical treatment detected with the vertical sensor block 15 -- child 2 A location the vertical direction the free medical treatment detected with the width sensor block 23 -- child 2 A location a cross direction the free medical treatment detected with the strength sensor block 36 -- child 2 each data of the amount of protrusions -- internal RAM -- memorizing -- switch SW3 choosing -- free medical treatment -- child 2 When making it operate It is constituted so that the contents of the program of an automatic actuation control means may be changed based on the data memorized by RAM.

[0032] Hereafter, modification of the contents of the program of the automatic actuation control means based on the data memorized by RAM of body microcomputer 1a is explained. in addition -- this example -- the free medical treatment among the contents of the program -- child 2 It considers as the thing in which modification like the location of the amount of protrusions and the vertical direction, the location of a cross direction, a mode of operation, and a right hand side is possible.

[0033] first, the free medical treatment within a program -- child 2 The actuation which changes the amount of protrusions is explained based on drawing 10 . in addition, free medical treatment [in / here / an early program] -- child 2 It explains that the level of the amount of protrusions was set as Z4.

[0034] for example, switch SW5 -SW11 -- free medical treatment -- child 2 free medical treatment among the data memorized by RAM when carrying out manual actuation -- child 2 the case where the average of the amount of protrusions is the Z4 neighborhood -- the time of the next use -- switch SW3 free medical treatment -- child 2 When carrying out automatic course actuation, a program is changed into Z5 of Z4 to 1 level strength, and is performed. the time of this next use -- free medical treatment -- child 2 the case where said average is the Z6 neighborhood when carrying out manual actuation -- the time of the further next use -- free medical treatment -- child 2 When carrying out automatic course actuation, a program is changed into Z6 of Z5 to 1 level strength, and is performed. here -- said average -- the free medical treatment from an initial state to this time -- child 2 free medical treatment one in use although it is desirable to integrate and calculate the amount of protrusions -- child 2 You may ask in the amount of protrusions.

[0035] therefore, the case where said average turns a top [level / last] -- the time of

the next use -- free medical treatment -- child 2 When carrying out automatic course actuation, the level of the amount of protrusions is changed into 1 level strength from the last level, and a program is performed.

[0036] on the contrary, the case where said average turns under from the last level -- the time of the next use -- free medical treatment -- child 2 When carrying out automatic course actuation, the level of the amount of protrusions is changed into 1 level weakness from the last level, and a program is performed.

[0037] moreover, the level of last time [average / said] and abbreviation -- case it is the same -- the time of the next use -- free medical treatment -- child 2 When carrying out automatic course actuation, a program is performed as [level / of last time / level / of the amount of protrusions].

[0038] next, the free medical treatment within a program -- child 2 The actuation which changes the location of the vertical direction is explained.

[0039] the free medical treatment within the program mentioned above -- child 2 Like the actuation which changes the amount of protrusions free medical treatment -- the free medical treatment among the data memorized by RAM when carrying out manual actuation of the child 2 -- child 2 every mode of operation -- free medical treatment -- child 2 the average of the location of the vertical direction -- asking -- the time of the next use -- free medical treatment -- child 2 When carrying out automatic course actuation One level of levels of the location of the vertical direction is changed at a time in the direction approaching said average, and a program is performed.

[0040] next, the free medical treatment within a program -- child 2 The actuation which changes the location of a cross direction is explained.

[0041] the free medical treatment within the program mentioned above -- child 2 Like the actuation which changes the amount of protrusions free medical treatment -- the free medical treatment among the data memorized by RAM when carrying out manual actuation of the child 2 -- child 2 every mode of operation -- free medical treatment -- child 2 the average of the location of a cross direction -- asking -- the time of the next use -- free medical treatment -- child 2 When carrying out automatic course actuation One level of levels of the location of a cross direction is changed at a time in the direction approaching said average, and a program is performed.

[0042] next, the free medical treatment within a program -- child 2 The actuation which changes a mode of operation is explained. free medical treatment -- child 2 free medical treatment among the data memorized by RAM when carrying out manual actuation -- child 2 every mode of operation -- a time amount ratio -- asking -- the time of the next use -- free medical treatment -- child 2 when carrying out automatic

course actuation, a program runs on a time amount ratio -- as -- each voice of operation -- the operating time [like] is changed and performed.

[0043] for example, a beat and the time amount ratio of beat back ***** -- high -- case the time amount ratio of counterboring is low -- the operating time of counterboring -- predetermined time -- it becomes short and this time amount that became short assigns the operating time of a beat or beat back ***** -- having -- each voice of operation -- the operating time [like] is changed.

[0044] next, the free medical treatment within a program -- child 2 The actuation which changes at least a right hand side is explained. the free medical treatment within the program mentioned above -- child 2 Like the actuation which changes a mode of operation free medical treatment -- child 2 free medical treatment among the data memorized by RAM when carrying out manual actuation -- child 2 about a right hand side -- a (time amount, such as whole upper-half-of-the-body, crest, shoulder, and the waist) ratio -- asking -- the time of the next use -- free medical treatment -- child 2 When carrying out automatic course actuation The operating time like each right hand side is changed, and a program is performed so that it may correspond to a time amount ratio.

[0045] for example, the time amount ratio of a shoulder -- high -- case the time amount ratio of a crest is low -- the operating time to a crest -- predetermined time -- it becomes short, this time amount that became short is assigned to the operating time to a shoulder, and the operating time like each right hand side is changed. therefore, free medical treatment -- child 2 It can be made to be able to operate focusing on a shoulder, or can be made to operate focusing on the waist.

[0046] As mentioned above, since this example can change the contents of the program of an automatic actuation control means based on the data memorized by RAM, the more it uses it, the more it can bring the contents of the program in the direction suitable for liking of a user close, consequently can perform more effective free medical treatment.

[0047] in addition -- this example -- the free medical treatment within a program -- child 2 When the location of the amount of protrusions and the vertical direction and the location of a cross direction were changed, in quest of the average, it changed 1 level of levels at a time in the direction approaching this average, but a level may be changed so that it may always be in agreement with this average. in addition, instead of asking for an average -- free medical treatment -- child 2 It may ask for the time amount ratio for every mode of operation, and the contents of the program may be changed in the direction approaching a time amount ratio.

[0048]

[Effect of the Invention] the massage machine according to claim 1 established the activity modification means -- an automatic actuation control means -- free medical treatment -- the condition of having brought close the contents currently programmed beforehand in the direction suitable for liking of a user when operating a child -- carrying out -- free medical treatment -- a child can be operated, consequently more effective free medical treatment can be performed.

[0049] A massage machine according to claim 2 can bring the contents of the program in the direction suitable for liking of a user close by changing the contents currently programmed beforehand in the direction approaching the time amount ratio or average about a location in addition to effectiveness according to claim 1.

[0050] In addition to effectiveness according to claim 1 or 2, a massage machine according to claim 3 can constitute the program of an automatic actuation control means easily, and can change the program by the activity modification means easily.

[0051] A massage machine according to claim 4 can bring the contents of the program in the direction suitable for liking of a user close by changing the contents currently programmed beforehand in the direction which projects and approaches the time amount ratio or average about an amount in addition to effectiveness given in any [claim 1 thru/or] of 3 they are.

[0052] A massage machine according to claim 5 can bring the contents of the program in the direction suitable for liking of a user close by changing the contents currently programmed beforehand in the direction approaching the time amount ratio about a mode of operation in addition to effectiveness given in any [claim 1 thru/or] of 4 they are.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the configuration block Fig. of one example of this invention.

[Drawing 2] It is the top view of the actuation machine.

[Drawing 3] It is the important section decomposition perspective view.

[Drawing 4] It is the top view of the 1st disk.

[Drawing 5] It is the table of operation showing the configuration of the vertical sensor block.

[Drawing 6] It is the important section perspective view.

[Drawing 7] It is the table of operation showing the configuration of the width sensor

block.

[Drawing 8] It is the important section perspective view.

[Drawing 9] It is the table of operation showing the configuration of the strength sensor block.

[Drawing 10] It is the flow chart which shows modification of the program.

[Description of Notations]

1 Free Medical Treatment -- Child